

Chelonoidum araiorum sp. nov., an Unusual Species of the Cephenniini (Coleoptera, Scydmaenidae) from the Intertidal Zone of the Pacific Coast of Central Honshu, Japan

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Abstract *Chelonoidum araiorum* sp. nov. (Coleoptera, Scydmaenidae, Cephenniini) is described from Central Honshu, Japan. The new species is easily distinguishable from its Japanese congeners by having all antennomeres longer than wide, distinctively more slender body and the shape of the aedeagus. Members of the tribe Cephenniini are known to occur in the forest floor; the new species is unique in inhabiting the intertidal zone of the Pacific coast. The male habitus and the aedeagus are illustrated.

Key words: Scydmaenidae, Cephenniini, *Chelonoidum*, new species, taxonomy, Japan

Introduction

The genus *Chelonoidum* Strand comprises twelve species distributed in the Palearctic and Nearctic Regions (Newton & Franz, 1998). However, members of *Chelonoidum* seem to be relatively common also in the Oriental Region (Jałoszyński, unpublished observations). Seven species have been described from the East Palearctis; two of them are known to occur only in the Russian Far East, three only in Japan, and two species have been found both in Russia and Japan (Reitter, 1887; Kurbatov, 1995). The Japanese species are: *Ch. pullatum*, *Ch. besucheti*, and *Ch. loebli* known to occur in Shikoku (Ehime Pref.); *Ch. moderatum* from the same locality in Shikoku, found also in Honshu (Gifu Pref.); and *Ch. torosum* reported to inhabit Gunma Prefecture in Honshu, (all described by Kurbatov, 1995). Only two other genera of the Cephenniini have been found in Japan: *Cephennodes* Reitter, with two species (Sharp, 1886; Jakobson, 1910; Csiki, 1919; O'Keefe & Li, 1998; Kurbatov, 1995; Jałoszyński & Hoshina, 2003a), and *Neseuthia* Scott, with four species discovered very recently (Jałoszyński & Hoshina, 2003b).

All described Japanese species of *Chelonoidum* have been reported to inhabit mountainous areas, at elevations of 900–1750 m (Kurbatov, 1995). I had the opportunity to examine two male *Chelonoidum* specimens collected in a lowland area of Central Honshu. These specimens were found to belong to an undescribed species. The material was collected by two Japanese entomologists; one individual by Ms. Shiho Arai, and the other one by Mr. Koji Toyoda. Subsequently, this couple has married, and since the husband changed his name, they have become Mr. and Mrs. Arai. In the present paper, the new species is dedicated to them, and is described under the name *Chelonoidum araiorum* sp. nov. The type specimens are deposited in the National Science Museum, Tokyo (NSMT), and in the private collection of the author (PCPJ).

Taxonomy

Genus *Chelonoidum* Strand

Chelonoidum Strand, 1935: 285 (replacement name for *Chelonoides* Croissandeau).

Chelonoides Croissandeau, 1894: 418 (as subgenus of *Cephennium*). Type species: *Cephennium turgidum* Reitter, 1887 (by monotypy).

Members of *Chelonoidum* are externally indistinguishable from species belonging to the genus *Cephennodes* Reitter. Both genera share the following characters: body very stout, convex; pronotum broad, usually wider than long, subrectangular, with a pair of basi-lateral foveae; procoxae narrowly separated by prosternal process; each elytron with single basal fovea and internal humeral carina. The only reliable difference between the two genera is the design of the male genitalia: in *Chelonoidum* the median lobe is voluminous, bulbous, distinctly demarcated from apical sclerites protruding from its ventral part, and apices of the parameres are usually not approximate; in *Cephennodes* the median lobe is always characteristically drop-shaped, with apical part distant from long axis of the aedeagus, apical sclerites are relatively short, and asymmetrical parameres surrender the median lobe, so that their apices are always approximate. Both genera externally closely resemble members of *Cephennium* Müller et Kunze, though they do not possess pits on the pronotum.

***Chelonoidum araiorum* sp. nov.**

(Figs. 1, 2A–C)

Diagnosis. The new species can be distinguished from all other Japanese members of *Chelonoidum* by having slender body, unusually long and slender antennae, and by unique design of aedeagus.

Description. Body small, elongate, moderately convex, reddish-brown, legs, antennae and palpi slightly brighter, setation yellowish, moderately long, suberect.

Male. (Fig. 1). Body length: 1.28–1.3 mm (mean: 1.29 mm). Head length (from posterior margin of eyes to anterior margin of clypeus): 0.19 mm, maximum width: 0.3 mm; head retracted into pronotum up to hind margins of small, dorso-ventrally elongate eyes; frons trapezoidal, gradually lowering toward clypeus; supraantennal tubercles raised, but indistinctly demarcated from frons and vertex; vertex nearly four times as wide as long, slightly convex; punctation distinct, dense, but relatively fine; setation moderately dense, suberect. Antenna long and slender,

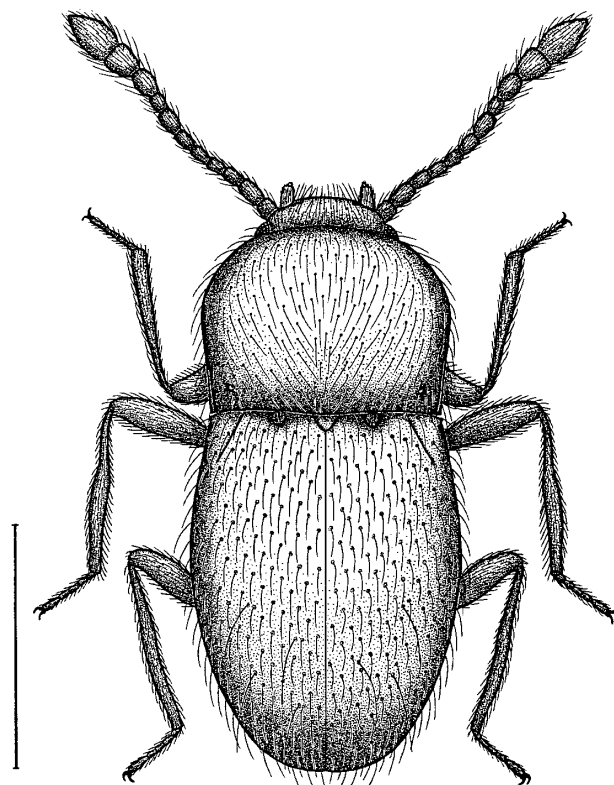


Fig. 1. Habitus of *Chelonoidum araiorum* sp. nov., holotype male. Scale: 0.5 mm.

length: 0.62–0.64 mm (mean: 0.63 mm), all antennomeres longer than wide, antennal club indistinctly delimited, composed of antennomeres IX–XI, relative lengths (widths) of antennomeres: 1.33 (1.11) : 1.55 (1) : 1 (0.89) : 1 (0.89) : 1.11 (0.89) : 1 (0.89) : 1.55 (1) : 1.11 (1) : 1.44 (1.22) : 2 (1.78) : 3.11 (1.89).

Pronotum subrectangular, distinctly wider than long, widest near anterior third, length: 0.37 mm, maximum width: 0.49 mm, width at base: 0.45–0.47 mm (mean: 0.46 mm). Anterior margin broadly, but shallowly emarginate; anterior angles well recognizable, nearly straight, blunt (in strictly dorsal view anterior angles are not visible); lateral margins rounded, very finely serrated, only slightly narrowing toward minimally obtuse hind angles; lateral edges in posterior 2/3 sharp; posterior half with very narrow lateral carina; base minimally biemarginate, with median part slightly expanded posteriorly; two basal pits relatively small, located near hind angles; punc-

tation relatively dense, but composed of very small, sharply delimited punctures; setation dense, setae as thin as those on head in anterior part, gradually thickening toward base, directed posteriorly in middle, and toward middle and posteriorly on both lateral sides.

Elytra length: 0.72–0.74 mm (mean: 0.73 mm), combined width: 0.55–0.56 mm (mean: 0.555 mm), elytral index (length/width): 1.31–1.32; elytra oval, twice as long as pronotum, widest slightly anterior to the middle, in widest place clearly wider than pronotum, rounded at apex; each elytron with well developed and sharp humeral denticle, and moderately large, circular and setose basal pit closer to moderately large, triangular scutellum than to humerus; internal humeral carina as short as about 1/6 of elytron; punctation sparser than that on pronotum, composed of slightly larger, but more shallow and slightly diffused punctures; setation dense, setae as thick as those on posterior part of pronotum,

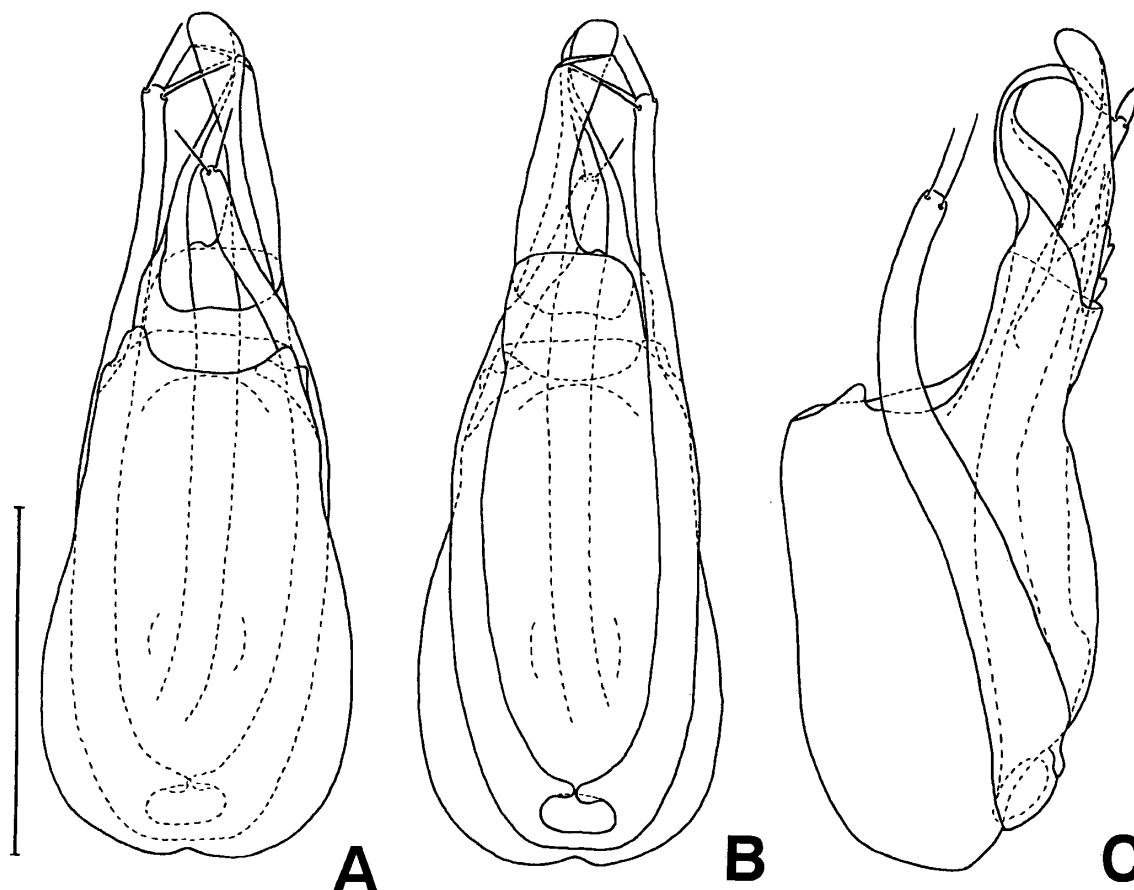


Fig. 2. Aedeagus of *Chelonoidum araiorum* sp. nov. in dorsal (A), ventral (B), and lateral (C) views. Scale: 0.1 mm.

suberect, directed posteriorly, additionally each elytron with several erect setae in posterior half. Hind wings well developed, about twice as long as elytra.

Legs without peculiar characters, long and slender; femora widest near middle; protibiae straight, widest near apex, meso- and metatibiae slightly recurved and widest near middle; tarsi long, metatarsi longest, all tarsomeres nearly equal in width, tarsomeres I–IV gradually reducing in length, V as long as three preceding tarsomeres.

Male genitalia. Aedeagus (Fig. 2A–C) relatively small, 0.24 mm in length, with well delimited voluminous bulbous part and apical sclerites protruding from its ventroapical part, widest near basal fourth in dorso-ventral view; base with distinct median emargination. Parameres long, but relatively thick, asymmetrical, each bearing two long apical setae; apical group of sclerites moderately complicated, the longest sclerite is twisted near distal third and has rounded apex, the second longest sclerite in lateral view is curved hook-like.

Female. Unknown.

Distribution. Japan, Central Honshu (Kanagawa Prefecture).

Etymology. This species is dedicated to Koji and Shiho Arai, Japanese entomologists who collected the type material.

Holotype, ♂, Japan, Honshu, Kanagawa Pref., Manazuru Point, Manazuru Town, Pacific coast, 5. v. 2002, Koji Toyoda (presently Arai) leg. (NSMT). Paratype, ♂, same data except for Banbaura beach, 28. x. 2002, Shiho Arai leg. (PCPJ).

Remarks. This species was collected in the intertidal zone on a stony/sandy beach. It was found under stones, in company with crabs and holothurians. This changable environment is a very unusual habitat for the Scydmaenidae, majority of which prefers stable habitats, like forest floor, hollow trees or ant colonies. All other known species of *Chelonoidum* inhabit leaf litter and rotten deciduous wood, most of them occurring in mountainous areas.

The new species possesses body and antennae

more slender than in any other *Chelonoidum*. The design of the aedeagus is typical for the genus, and clearly shows specific characters, which ensure an unambiguous identification.

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